

**REMARKS**

**Status of the Application**

Applicant notes that U.S. Application Serial No. 10/829,632 (having a common inventor and being filed on the same day, April 8, 2004, as the current application) was not considered in the Information Disclosure Statement filed September 24, 2004. Page 2 of the Action states that the Information Disclosure Statement filed September 24, 2004 does not identify the inventor as required by 37 C.F.R. 1.98(b). Applicant submits that the inventor was properly identified; however, an additional Information Disclosure Statement is filed herewith which lists the applicant, patent application publication number, and publication date in compliance with 37 C.F.R. 1.98(b). Consideration of all references in the Information Disclosure Statement filed herewith is respectfully requested.

Paragraph 88 has been amended to correct the informality noted on page 3 of the Action. Applicant requests that the objection to the Specification be withdrawn.

At the time of the Action, Claims 1-23 were pending. Claims 4-9 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 4, 6 and 9 have been amended to provide antecedent basis. Applicant requests that the rejection under 35 U.S.C. § 112 be withdrawn.

Claims 1-8, 11, 13-19, and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,841,153 to Wormald ("Wormald"). Claims 9, 10, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wormald in view of U.S. Patent No. 3,626,187 to Laney ("Laney"). Claims 12 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wormald in view of U.S. Patent No. 4,582,992 to Atwell ("Atwell").

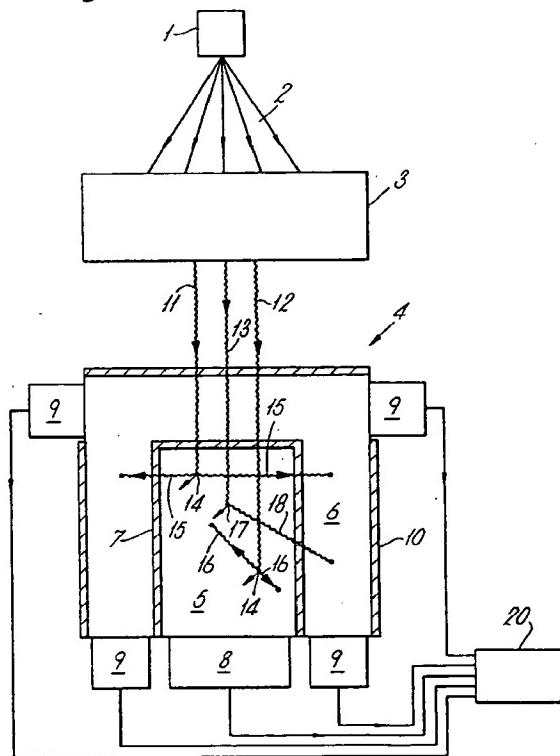
Applicant submits that the pending claims are patentable over the cited references and request that the rejections under §§ 102/103 be withdrawn for at least the reasons that follow.

**The Section 102/103 Rejections**

Claim 1 recites "a gamma ray shielding material between the first and second gamma ray detectors." Claim 13 recites "shielding gamma rays between the first and second gamma ray detectors." Support for this recitation can be found, for example, in paragraph 49 of the Specification and as shown by the gamma ray shielding material 56 of Figure 1. Applicants submit that at least this feature is not taught or suggested by Wormald.

**Figure 1** of Wormald specifically illustrates that gamma rays 15 and 18 pass between the scintillators 5, 6. Applicant notes that the detectors 5, 6 of Wormald are separated by a light reflective layer 7 so that light generated within the scintillator 5 does not pass to the outer scintillator 6; however, as clearly shown in **Figure 1**, gamma rays 15 and 18 pass between the scintillators 5, 6. For example, as discussed in column 6, lines 16-20 of Wormald, the gamma rays 15 represent a pair of 511 keV gamma rays that pass out of the central scintillator 5 and in the outer scintillator 6. This reaction is generally referred to as "pair production." **Figure 1** of Wormald is reproduced below.

*Fig.1.*



In contrast, a gamma ray shielding material between the first and second gamma ray detectors of the current application prevents or reduces the likelihood that gamma rays pass between the detectors, such as in pair production reactions in adjacent detectors. As discussed in paragraph 49 of the current application, in this configuration, gamma rays are detected that are produced as a result of interactions between neutrons from the source and the bulk material. Thus, according to embodiments of the present invention, gamma rays at

certain characteristic energies of various elements in gamma ray can be detected and the contents of the bulk materials can be analyzed.

For at least the above reasons, independent Claims 1 and 13 are not anticipated by Wormald and Applicant respectfully requests that the rejections under § 102/103 be withdrawn. Claims 2-12 and 14-23 depend from Claims 1 and 13, respectively, and are patentable at least per the patentability of the claims from which they depend.

**IV. Conclusion**

In view of the foregoing amendment and remarks, the Applicants respectfully request that all outstanding rejections to the claims be withdrawn and that a Notice of Allowance be issued in due course.

Respectfully submitted,

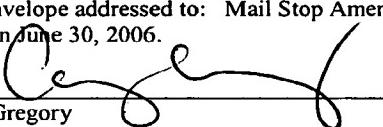


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Carey Gregory